

Using Lessons Learned Through FEC To Integrate Electronics Into Your EMS

By recognizing the prominence of electronic products in the federal community and effectively managing the impacts of the purchase, use, and disposal of those products within an EMS framework, a facility or installation can reduce the environmental impacts of its activities and comply with several federal mandates and other requirements. An EMS can raise awareness of pollution prevention actions and tools that can be used throughout an electronic product's life cycle and facilitate continual improvement in an organization's environmental performance. The table below addresses the elements of ISO 14001 in the context of electronic equipment management across the life cycle of equipment, the primary component of the FEC program. Life cycle management includes purchasing environmentally preferable electronic equipment, operating the equipment in an efficient way, and managing the environmentally sound disposition of the equipment at end of equipment life. Please note that the following information and ISO 14001 references are based on the 1996 version of the Standard, although much of the information is compatible with the 2004 version of ISO 14001.

EMS Element (ISO 14001)	Electronic Equipment Component	Examples of FEC Program Equivalents
4.2 Environmental Policy	A conforming Federal Facility Environmental Policy Statement can include green purchasing, energy efficiency, and recycling by reference in the commitments to compliance with legal and other requirements and prevention of pollution. An organization also may include more direct commitments to environmentally sound purchasing, use, and end-of-life management of all equipment (including electronics).	<i>[Facility] will consider environmental factors in all purchasing and end-of-life management decisions and will give preference to those products and services designated by or recommended in federal green purchasing preference programs, as well as those products and services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose.</i>
4.3.1 Environmental Aspects	The procedure to identify environmental aspects and impacts must be applied to procurement (purchasing) and contracting, operation of equipment and management of equipment at end-of-life as activities you control or influence. Include procurement and contracting personnel, facility and	Use the activity/aspect identification process to identify electronic equipment purchase, use, and disposal as activities that result in impacts to be managed by the EMS. Consider using FEC targeted impacts as triggers for significance in aspects assessment.

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	<p>equipment management officials and recycling or environmental specialists on the EMS Cross Functional Team identifying and ranking aspects and impacts.</p> <p>When identifying and prioritizing environmental aspects, consider the impacts of the life-cycle management of electronic equipment as criteria to trigger significance. Aspects may include:</p> <ul style="list-style-type: none"> ▪ Toxics releases ▪ Impacts from asset management (equipment) ▪ Energy use or materials use ▪ Waste generation 	<p>FEC targets the three lifecycle phases of electronic equipment for the purpose of operating and managing the equipment in an efficient and environmentally sound manner. The following examples are activities that result in impacts that should be considered in significance determination:</p> <ul style="list-style-type: none"> • Activity: purchase of new computers • Aspect: consumption of natural resources • Impact: depletion of natural resources • Activity: use of computers • Aspect: energy use • Impact: depletion of natural resources • Activity: disposal of computers • Aspect: disposal of hazardous materials • Impact: potential pollution of natural resources
4.3.2 Legal and Other Requirements	<p>A conforming legal and other requirements procedure should identify all related laws, regulations, and Executive Orders that apply to equipment management activities. Electronic equipment management is affected by procurement and recycling-related requirements as well as general “greening the government” mandates and requirements. Any agency-specific procurement requirements, including your agency’s <i>Affirmative Procurement Plan</i> and <i>Environmentally Preferable Purchasing Strategic Plan</i>¹ are considered “other requirements” and should be incorporated into legal and other requirements applicable to the EMS.</p> <p>For ISO 14001 systems, agreement to the FEC Memorandum of Understanding (MOU) by a parent agency is considered an “other requirement”.</p>	<p>The FEC program provides a list of regulations, requirements and mandates that affect management of electronic equipment and tools. The following FEC tools are especially helpful:</p> <p>http://www.federalelectronicschallenge.net/Tools/fec_regs.pdf</p>

¹ <<http://www.ofee.gov/gp/gplinks.html>>

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<p>4.3.3 Objectives, Targets, and Environmental Management Programs</p>	<p>Determine realistic objectives, based on the commitment to pollution prevention, legal and other requirements, significant aspects, and mission requirements. Improving the life-cycle management of equipment to decrease environmental impacts may reduce the impact of significant aspects. Consider focusing on all purchases (i.e., IT equipment) or services (i.e. recycling contracts) over a threshold amount, based on environmental impact and the amount of influence your facility has over the product or service provider(s).</p> <p>Establish programs to achieve objectives and targets. Participation in the FEC can serve as a tool for Environmental Management Programs (EMPs). Electronic equipment is generally an important resource for federal facilities and the life-cycle management of this equipment can be a part of EMPs. EMPs can pursue green purchasing, materials use, energy efficiency, or recycling-related objectives and targets and define a timeframe within which each should be achieved.</p>	<p>The following are some accepted FEC-related actions with example objectives and targets*:</p> <p>Decrease Electronics Energy Use:</p> <ul style="list-style-type: none"> • Ensure that at least 50 percent of all monitors purchased are ENERGY STAR compliant by CY2006 <p>Manage Electronics Materials Use:</p> <ul style="list-style-type: none"> • Demonstrate that 25 percent of electronic equipment is reused or refurbished within or outside your agency <p>Improve Electronics Waste Management:</p> <ul style="list-style-type: none"> • Require that vendors providing electronics recycling and reuse services minimize land disposal and incineration to the greatest extent possible. • No working computers are sitting idle by 200x. • Document that 100 percent of surplus and excess electronic equipment is recycled in an environmentally sound manner by 200x. <p>* Remember, objectives and targets are documented and reviewed and updated on an established schedule.</p> <p>Tools to help purchase greener electronics:</p> <ul style="list-style-type: none"> • FEC Guidance for Procurement of Environmentally Preferable Products http://www.federalelectronicchallenge.net/tools/procure.pdf

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		<ul style="list-style-type: none"> Electronic Product Environmental Assessment Tool http://www.epeat.net <p>Tool to help decrease electronics energy use impacts:</p> <ul style="list-style-type: none"> Energy Conservation with ENERGY STAR http://www.federalelectronicchallenge.net/tools/estar.pdf <p>Tools to help select an environmentally sound recycler:</p> <ul style="list-style-type: none"> Checklist for Selection of Electronics Recycling Services http://www.federalelectronicchallenge.net/tools/select.pdf Electronics Recycling Facility Audit Checklist http://www.federalelectronicchallenge.net/tools/audit.pdf
4.4.1 Structure and Responsibility	<p>Include procurement and contracting, IRM and environmental specialist personnel on the EMS Implementation Team – clearly define their roles towards achieving your EMS electronics goals.</p> <p>Assign staff to identify the products and services currently purchased to support your activities, who purchases them and how they are purchased.</p> <p>Assign responsibility and resources for Environmental Management Programs to achieve green purchasing and equipment management objectives and targets.</p>	<p>The FEC provides a step-by-step process and examples of how to build a team focused on improving the life-cycle management of electronic equipment. The following FEC tools may be helpful: http://www.federalelectronicchallenge.net/tools/getstart.pdf</p>

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4.4.2 Training, Awareness and Competence	Identify procurement training needs based on significant aspects and legal and other requirements for Federal green purchasing preference and equipment management programs. Train procurement and contracting staff and product users on and encourage them to request goods and services that reduce environmental impacts and meet performance standards. Ensure that all individuals associated with purchase, use and disposition phases of the life cycle of electronics are aware of their responsibilities.	The FEC provides examples of activities and trainings that can help improve the life-cycle management of electronics and improve employee awareness. These trainings can help institute corrective actions for EMS nonconformance. FEC training materials can be found at: http://www.federalelectronicschallenge.net/presenta.htm
4.4.3 Communication	The Communication Procedure should include guidance on who is responsible for internal communication on significant aspects, including those related to green purchasing and equipment management, as well as how, how often and to whom information will be disseminated. Consider including electronic stewardship results in external communications.	The FEC provides outreach materials to demonstrate how the FEC program helps a facility manage electronic equipment over its life cycle to reduce its impacts. These outreach materials can be found at: http://www.federalelectronicschallenge.net/tools/getinvol.pdf
4.4.5 Document Control	Document control procedures will apply to all green purchasing documentation, including Affirmative Procurement and EPP plans, specifications, purchase orders and contracts and lists of green products approved for purchase. Records of proper disposition of electronics are also addressed in this element.	Procedures and responsibilities for creation and modification of purchasing, use, equipment management and disposition documents may be applicable.
4.4.6 Operational Control	Ensure that all significant aspects related to life-cycle management of equipment are addressed by operational controls. Develop and implement control procedures to ensure that product users, specification writers and the procurement and contracting personnel include an evaluation of environmental considerations, along with price, performance and availability, in the criteria for purchasing decisions and the selection of services.	Green contract language for more than 600 products and services is available at http://www.epa.gov/epp/database.htm . Operational control procedures should ensure that the management and purchases of products and services support the environmental policy, legal and other requirements and green purchasing and equipment management objectives and targets.

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	Communicate green purchasing and equipment management procedures and requirements to suppliers and contractors, especially those that provide goods and services for activities that have significant environmental aspects.	
4.4.7 Emergency Response	Emphasize how the purchase of environmentally preferable products and proper management of electronic equipment that may contain materials of concern reduce the potential for incidents requiring emergency response.	<p>The FEC provides information about materials that be of concern in electronic equipment and proper ways to manage this equipment at:</p> <p>http://www.federalectronicchallenge.net/tools/3_05_whyelect ric.pdf</p>
4.5.1 Monitoring and Measurement	<p>A conforming procedure will document what green purchasing data to collect and how to collect and manage the data related to significant environmental aspects and requirements for reporting on green purchasing.</p> <p>When possible, measurements should quantify positive environmental impacts as well as progress toward meeting established green purchasing objectives and targets. For example, measure reductions in solid waste associated with purchases of environmentally preferable products, reductions in hazardous waste disposal associated with substitution of less toxic products, as well as reductions in energy and water use associated with products to increase efficiency.</p>	<p>In addition to tracking the amount of electronics purchased that are environmentally preferable, the FEC program encourages facilities to track their use of energy efficient electronic equipment and the volume of electronic equipment they reuse, donate and recycle.</p> <p>The FEC program encourages partners to develop baseline data and goals, and these can serve as records for a facility's EMS. The FEC program also encourages partners to submit annual information on progress and provides recognition for achievements. The FEC provides tools for establishing baselines for electronic purchasing, use and end-of-life management initiatives and has developed an Annual Progress reporting form to track improvements. The following tools may be helpful:</p> <p>http://www.federalectronicchallenge.net/forms/repform.pdf</p> <p>http://www.federalectronicchallenge.net/forms/baselsurv5.pdf</p> <p>The FEC has designed information for facilities to exhibit how the improved life-cycle management of electronic equipment reduces environmental impacts. The following tools may be helpful in explaining this connection:</p>

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		http://www.federalelectronicchallenge.net/forms/repform.pdf http://www.federalelectronicchallenge.net/tools/fecchal.ppt The FEC program has developed an environmental benefit calculator for electronics that Partners can use to quantify environmental improvement.
4.5.2 Nonconformance and Corrective and Preventive Action	Designate responsibility for investigating and correcting findings of non-conformance with the EMS requirements, in accordance with facility corrective action procedures.	EMS records procedures should capture FEC activities.
4.5.3 Records	Identify green purchasing and recycling records, such as training, purchases of specific products, amount of material sent for recycling, donation or disposal, reports to management and government agencies and audits. Maintain these environmental records in accordance with facility EMS procedures.	EMS records procedures should capture FEC activities.
4.5.4 EMS Audit	Ensure that life-cycle equipment management EMS elements are included in the activities to be considered in either internal or external audits of the EMS.	
4.6 Management Review	Ensure that progress toward achieving environmentally preferable life cycle management of electronic equipment objectives and targets and any related operational controls are discussed as part of the EMS Management Review. Ensure that the management review considers recommendations to improve facility life cycle equipment management efforts.	FEC Partners that receive recognition and are used as case studies can use the EMS Management Review to highlight these achievements and show progress toward commitments. FEC Case Studies: http://www.federalelectronicchallenge.net/case_stu.htm

